

### **CLAIM LISTING:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Presented) A slot, array antenna, comprising:  
a power feeding waveguide for feeding microwave power; and  
a plurality of rectangular radiating waveguides connected to a plurality of windows which are disposed along the longitudinal direction of the power feeding waveguide, so as to guide the microwave power from the plurality of windows to the outside of the antenna;

wherein each of the radiating waveguides has a plurality of slots disposed along the longitudinal direction of the radiating waveguide; and the interval "d" between adjacent slots is substantially the same as the wavelength  $\lambda_m$  of the microwave in the rectangular radiating waveguide.

2. (Previously Presented) A slot array antenna according to claim 1, wherein the interval "d" between adjacent slots is in the range of  $0.75 < d/\lambda_m < 1.25$ , with respect to the wavelength  $\lambda_m$  of the microwave.

3. (Previously Presented) A slot array antenna according to claim 1, wherein the dielectric constant of a dielectric material disposed in the radiating waveguide is 1 or more.

4. (Previously Presented) A slot array antenna according to claim 1, wherein the power-feeding waveguide is a rectangular waveguide.

5. (Previously Presented) A slot array antenna according to claim 1, wherein a traveling wave is to be generated in the radiating waveguide.

6. (Previously Presented) A slot array antenna according to claim 1, wherein a matching slot is disposed at the terminal end of the radiating waveguide.

7. (Previously Presented) A slot array antenna according to claim 1, wherein the slots formed on one side of the radiating waveguide are disposed such that they gradually deviate from the center axis in the longitudinal direction of the radiating waveguide.

8. (Previously Presented) A slot array antenna according to claim 1, wherein the slots provided on one side of the radiating waveguide are such that they form an inclination angle of  $45^\circ$  relative to the center axis in the longitudinal direction of the radiating waveguide.

9. (Previously Presented) A slot array antenna according to claim 1, wherein a slit having a variable width is disposed at the power-feeding portions for feeding power from the power-feeding waveguide to the radiating waveguide.

10. (Previously Presented) A slot array antenna according to claim 1, wherein the slots formed on one side of the radiating waveguide are selected from the group consisting of: slots perpendicular to the traveling direction of the electromagnetic field, slot pairs in the form of "staggered  $\Lambda$ ", and slot pairs each of which is inclined at about  $45^\circ$  with respect to the traveling direction of the electromagnetic field.

11. (Previously Presented) A plasma processing apparatus comprising:  
a plasma processing chamber for subjecting an object to a plasma treatment;  
and

antenna means for guiding microwave power into the plasma processing chamber so as to generate plasma in the plasma processing chamber;

wherein the antenna means comprises: a power-feeding waveguide for feeding microwave power; and a plurality of rectangular radiating waveguides connected to a plurality of windows which are disposed along the longitudinal direction of the power-feeding waveguide, so as to guide the microwave power from the plurality of windows to the outside of the antenna, wherein each of the radiating waveguides has a plurality of slots disposed along the longitudinal direction of the radiating waveguide; and the interval "d" between adjacent slots is substantially the same as the wavelength  $\lambda_m$  of the microwave in the rectangular radiating waveguide.

12. (Previously Presented) A plasma processing apparatus according to claim 11, wherein the interval "d" between adjacent slots is in the range of  $0.75 < d/\lambda_m < 1.25$ , with respect to the wavelength  $\lambda_m$  of the microwave.